AMENDMENTS TO THE CLAIMS

Please amend the present application as follows:

Claims

1 – 41 (Canceled)

42. (New) An optical cavity comprising:

a first reflector comprising:

a first layer having a non-concave first surface and a planar second surface; and

a stack having planar layers, wherein a planar first surface of the stack is juxtaposed with the planar second surface of the first layer; and

a second reflector comprising a stack of planar layers, and wherein the first and second reflectors are configured to provide at least one optical path from the second reflector to the first reflector such that light travelling in this optical path traverses the non-concave first surface of the first layer before undergoing reflection back towards the second reflector.

43. (New) The optical cavity of claim 42, wherein the first layer has an index of refraction that varies as a function of radial distance from an axial center of the first layer.

44. (New) The optical cavity of claim 42, wherein the non-concave first surface is a convex surface and wherein the first layer has a first index of refraction.

45. (New) The optical cavity of claim 44, wherein the first layer has a thickness, t, that varies as a function of a radial distance ρ from the axial center of the layer, wherein the thickness, t, provides a phase delay, $\Delta\phi$, that emulates a delay in phase between a first light ray L0 and a second light ray L1 reflected off a mirror, the light rays separated from each other by the radial
distance ρ.

46. (New) The optical cavity of claim 42, wherein the non-concave first surface is a convex surface and wherein the first layer has an index of refraction that varies as a function of radial distance out from an axial center of the first layer.

47. (New) The optical cavity of claim 42, wherein the non-concave first surface is a planar surface and wherein the first layer has an index of refraction that varies as a function of radial distance from an axial center of the first layer.

48. (New) The optical cavity of claim 42, wherein adjacent layers of the stack have different indices of refraction.

49. (New) The optical cavity of claim 48, wherein each of the layers of the stack has a quarter-wave optical thickness.

50. (New) An optical cavity comprising:

a first reflector having a planar first surface and a non-concave second surface;

a second reflector having a planar first surface and a planar second surface; and

a non-reflecting active region between the non-concave second surface of the first reflector and the planar first surface of the second reflector.

51. (New) The optical cavity of claim 50, wherein the first reflector comprises a material having an index of refraction that varies as a function of radial distance from an axial center of the first reflector.

52. (New) The optical cavity of claim 50, wherein the non-concave second surface is a convex surface of a layer having a first index of refraction.

53. (New) The optical cavity of claim 52, wherein the first layer has a thickness, t, that varies as a function of a radial distance ρ from the axial center of the layer, wherein the thickness, t, provides a phase delay, $\Delta\phi$, that emulates a delay in phase between a first light ray L0 and a second light ray L1 reflected off a mirror, the light rays separated from each other by the radial distance ρ.

54. (New) The optical cavity of claim 50, wherein the non-concave second surface is a convex surface of a layer having an index of refraction that varies as a function of radial distance from an axial center of the first layer.

55. (New) The optical cavity of claim 50, wherein the non-reflecting active region comprises a layer of semiconductor material.

56. (New) The optical cavity of claim 50, wherein the non-reflecting active region comprises a quantum well.

57. (New) The optical cavity of claim 50, wherein the non-concave second surface is a planar surface of a layer having an index of refraction that varies as a function of radial distance from an axial center of the first layer.

58. (New) A method for manipulating light in an optical cavity, comprising:

providing a first reflector having a non-concave first surface and a planar second surface;

providing a second reflector having a first and a second planar surface; and

reflecting light between the first reflector and second reflector such that light reflected by the second reflector traverses the non-concave first surface before undergoing reflection at the first reflector.

59. (New) The method of claim 58, wherein the first reflector comprises a first layer having a thickness, t, that varies as a function of a radial distance ρ from the axial center of the layer, wherein the thickness, t, provides a phase delay, $\Delta\phi$, that emulates a delay in phase between a first light ray L0 and a second light ray L1 reflected off a mirror, the light rays separated from each other by the radial distance ρ.

60. (New) The method of claim 59, wherein the optical cavity is part of a vertical cavity surface emitting laser.